A novel circuit model of a small-signal narrow-band amplifier is proposed. The proposed amplifier is designed using three MOSFETs and a BJT in quadruple Darlington configuration. The proposed circuit successfully amplifies small-signals of 1-10mV range and simultaneously provides high voltage gain and current gain with narrow bandwidth. In this way the proposed design achieved excellent results. Qualitative performance of the proposed amplifier is also compared with the circuit which is having BJT-MOSFET in Darlington pair configuration and with the circuit which is having BJT-MOSFETs in Darlington triple configuration. The proposed amplifier can be used to process audio range signal excursions and may be useful for those applications where high voltage and current gain would be the prime requirement of amplification in narrow-band low frequency region. The qualitative and tuning performance offer a flexible application to these amplifiers to be used as high voltage gain, high power gain and tuned amplifiers.
A Novel Circuit Model of Small-Signal Amplifier using MOSFETs and BJT in Quadruple Darlington Configuration


Index Terms
Keywords
Amplifier – Darlington – Frequency.